

Algebra 2: Functions - How do functions underlie all other algebra 2 work?

- 1) Given the relation:
 $\{(\underline{0}, 1), (\underline{-4}, 1), (\underline{2}, -3), (\underline{0}, 2)\}$,
 how many points must I remove
 to turn it into a function?
 which one(s)?

the collection
 of all x-values
 in my relation/function
 is called:

DOMAIN

the y-values
RANGE

- 3) Simplify $(3x^2y^{-4})^3 \left(\frac{x^{-1}}{y^{-2}}\right)^2$ Given that $f(x) = 2x^2 - 3x$,
 what is $f(-1)$?

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"function" rule

2) Given that $f(x) = 2x^2 - 3x$,
what is $f(-1)$?

If we have $y = 2x^2 - 3x$, what is the value of
 y when $x = -1$?

$$y = 2(-1)^2 - 3(-1) \\ = 2(1) + 3 = 5$$

$$f(-1) = ?$$

THIS IS NOT MULTIPLY

$$f(-1) = 5$$

1) Given the relation:
3) Simplify $\{(0, 1), (-4, 4), (2, 3), (0, 2)\}$,
how many points must I ~~remove~~ ^{add} to turn it into a function?
which one(s)?

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1) Given the relation:

$$\{(0,1), (-4,1), (2,-3), (0,2)\},$$

how many points must I remove
to turn it into a function?
which one(s)?

2) Given that $f(x) = 2x^2 - 3x$,
what is $f(-1)$?

3) Simplify $(3x^2y^{-4})^3 \left(\frac{x^{-1}}{y^{-2}}\right)$

$$(3^3 x^{2 \cdot 3} y^{-4 \cdot 3}) \left(\frac{x^{-1}}{y^{-2}}\right)$$

$$(3^3 x^6 y^{-12}) \left(\frac{x^{-1}}{y^{-2}}\right)$$

$$3^3 x^6 y^{-12} \left(\frac{y^2}{x^1}\right) =$$

$$\frac{3^3 x^6 y^{-12} y^2}{x^1}$$

$$= 3^3 x^5 y^{-10} = \left(\frac{3^3 x^5}{y^{10}}\right)$$

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$$f(x) = \frac{1}{3} x^2$$

$$f\left(\frac{3}{4}\right) = \frac{1}{3} \left(\frac{3}{4}\right)^2 = \left(\frac{1}{3}\right) \left(\frac{3}{4}\right) \left(\frac{3}{4}\right) = \frac{3 \cdot 3}{3 \cdot 4 \cdot 4}$$

$$= \left(\frac{3}{3}\right) \left(\frac{3}{4 \cdot 4}\right) = \left(\frac{3}{16}\right)$$

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1) Given the relation:

$$\{(\cancel{0}, 1), (-4, 1), (2, -3), (\cancel{0}, 2)\},$$

how many points must I remove to turn it into a function?
which one(s)?

Or you
can just
take away 1.

take away the
(0,1) and (0,2)

this makes it a function
because the x's are not
the same.

x-values
same
mean
NOT a
function

ALL x's
different
mean
FUNCTION

3) Simplify $(3x^2y^{-4})^3 \left(\frac{x^{-1}}{y^{-2}} \right)$ Given that $f(x) = 2x^2 - 3x$,
what is $f(-1)$?

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2) Given that $f(x) = 2x^2 - 3x$,
what is $f(-1)$?

$$2(-1)^2 - 3(-1)$$

$$\Downarrow \quad \Downarrow$$

$$2(+1) + 3 = 5$$

$$f(-1) = 5$$

1) Given the relation:
 $\{(0,1), (-4,1), (2,-3), (0,2)\}$,

3) Simplify $(3x^2y + 1)$ to y^2 to turn it into a function?
how many points must I remove
which one(s)?

Algebra 2: Functions - How do functions underlie all other algebra 2 work?

3) Simplify $(3x^2y^{-4})^3 \left(\frac{x^{-1}}{y^{-2}}\right)$

$$(3x^2y^{-4})^3 \left(\frac{x^{-1}}{y^{-2}}\right)$$

$$3^3 x^6 y^{-12} \left(\frac{x^{-1}}{y^{-2}}\right)$$

$$a^m a^n = a^{m+n}$$

$$\frac{a^m}{a^n} = a^{m-n}$$

$$27 x^6 y^{-12} \left(\frac{x^{-1}}{y^{-2}}\right) = 27 x^5 y^{-10}$$

$$\frac{27 x^5 y^{-10}}{y^{10}}$$

$$\left\{ \begin{array}{l} y^{-10} \\ = \frac{1}{y^{10}} \end{array} \right.$$

1) Given the relation:

$$\{(0,1), (-4,1), (2,-3), (0,2)\}$$

how many points must I remove that $f(x) = 2x^2 - 3x$,
to turn it into a function? What is $f(-1)$?
which one(s)?